# DIGITAL CINEMA SERVERS

CATALOGUE 2010

powered by

DOLBY

doremi cinema

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QUBE

# DOLBY® Digital Cinema System

The Dolby® Digital Cinema system is a powerful, comprehensive, and reliable solution designed specifically for the cinema. We engineered it from the ground up for real-world projection booths with the flexibility to meet your needs for years to come. The same foresight and approach to quality that you expect from Dolby went into developing this system.

## Overview

The system comprises the Dolby Screen Server (DSS200) and Dolby Theatre Management System (TMS) software. The DSS200 combines a DCI specified media block with storage that houses digital content for playback. The media block decrypts the movie data and decodes the image. It outputs link-encrypted image data to the digital cinema projector and audio data to the cinema's sound processor, such as a Dolby CP750 or CP650, or a Dolby DMA8Plus Digital Media Adapter paired with another Dolby sound processor model.*

We designed the DSS200 to be serviced easily. The unit slides out from the rack on rails, and the top lifts up for easy access to the hardware inside.

The custom-designed media block, reprogrammable to accommodate future developments in image and sound formats, assures you the highest-quality picture and sound. For security's sake, when the content is decoded, it is reencrypted before being passed on within secure hardware so pirates cannot reach valuable movie data.

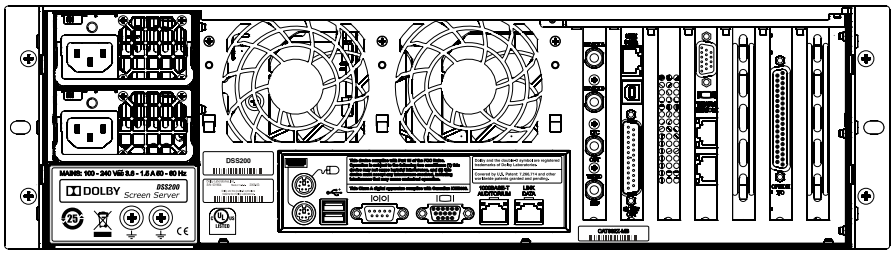
Theatre personnel can run the show remotely via the Dolby TMS software, which includes familiar transport controls and also allows central network control, easy setup, scheduling, and monitoring.

*CP500, CP65, CP200, CP45, or CP55

### Reliability Features Keep the Show Onscreen

- Dual redundant hot-swappable power supplies
- RAID 5 hard disc array with hot-swappable drives
- Hot-swappable cooling fans
- Maintains playback position in the event of a power failure
- Robust software design that isolates and prioritizes playback over all other activities

# DOLBY Screen Server (DSS200)




## General

**Image Decoding**

Purpose-designed digital cinema image decoder supports content in JPEG 2000 and MPEG-2 formats; JPEG 2000 maximum bit rate 250 Mbps; supported frame rates 2D at 24 and 48 fps, 3D at 24 fps; 2K or 4K content playback at progressive scan 2,048 x 1,080; MPEG-2 maximum bit rate 140 Mbps; supported frame rates 23.98, 24, 25, 29.97, 30 fps; progressive scan 1,920 x 1,080; MP at HL

**Packaging Format**

Supports MPEG Interop, JPEG Interop, and SMPTE packaging formats

**Audio Processing**

16-channel audio on 8 x AES/EBU balanced digital audio outputs

**Security**

2,048-bit RSA decryption for key delivery; 128-bit AES decryption for content; internal security manager for secure image and sound processing, SMPTE security logging, secure real-time clock; supports insertion of both video and audio watermarking; supports industry-standard key delivery messages (KDMs) and TI™ CineLink™ II (Diffie-Hellman and TLS)

**Subtitles**

Supports TI CineCanvas™ and SMPTE 428-7-2007 subtitles

**Show Storage Capacity**

Over 1,300 GB (formatted) internal content storage, enough for 10 features at 130 GB

**Content Hard Disc Drives**

RAID 5 system for redundancy; user-serviceable, hot-swappable hard disc drives

**Power Requirements**

100–240 VAC; 50–60 Hz; 250 W front-panel power switch; dual redundant power supply

**Dimensions and Weight**

3-U rackmount chassis; 686 x 483 x 133 mm (27 x 19 x 5.25 inches); net: 29.5 kg (65 lb)

**Environmental Conditions**

Operating 0°C–40°C (32°F–104°F), fan cooling, 20%–80% relative humidity (noncondensing)

**Automation Options**

Digital fail safe option to enable "lights on" automation if playback stops; serial RS-232 port directly connects to cinema automation with serial control; Ethernet directly connects to cinema automation with Ethernet control

**Regulatory Notices**

UL, FCC, CE, and RoHS compliant

## Front Panel

**Removable Media**

Industry-standard removable hard disc drive bay and DVD-ROM drive for content and key delivery

**Status LEDs**

Bicolor LEDs show status of power supply, temperature, and internal hard disc drives

**USB 2.0**

Type A connector for key or content delivery, optional keyboard/mouse input

**Monitor Output**

15-pin high-density female D-connector for optional VGA-compatible monitor to display user interface

## Rear Panel

**USB 2.0**

Two type A connectors, for optional keyboard and mouse to operate user interface

**Network Connections**

Three RJ-45 female connectors; 10/100/1,000Base-T with auto detection for auditorium network, theatre network, and future expansion; 1,000Base-LC optical fiber (optional, for theatre network)

**Serial Data**

9-pin male D-connector, RS-232

**General Purpose Input/Output**

Digital fail safe option to enable "lights on" automation if playback stops; possible future expansion

**Monitor Output**

15-pin high-density female D-connector for optional VGA-compatible monitor to display user interface

**Image Output**

Two BNC female connectors, 75Ω, HD-SDI per SMPTE 292M

**Digital Audio Output**

25-pin female D-connector, 16-channel output on 8 x AES/EBU balanced, 110Ω, transformer isolated, per AES3-1992

**Timecode Output**

BNC female connector, unbalanced, output impedance 50Ω per SMPTE 12M

**Video Reference I/O**

BNC female connector, can be switched between input and output; in output mode (the default), reference signal automatically matches the content being played

# DOLBY Theatre Management System Software

**Dolby Theatre Management System (TMS) software** simplifies and streamlines digital screen operations. It gives theatre personnel and network operations centers (NOCs) comprehensive central control over all presentations—for a single screen, a large multiplex, or a system integrator's entire network.

From ingesting content and moving it, even while playing, to drag-and-drop show assembly, Dolby TMS software features operational simplicity, at-a-glance monitoring, and comprehensive remote control. Dolby Web services now allow interoperability with third-party control systems, too. The playback system supports SMPTE draft-standard Closed Caption protocols, and the entire system can be upgraded remotely via your digital cinema network.

As an integral part of a networked Dolby Digital Cinema system, Dolby TMS software enables network control of up to three Dolby Screen Servers with no additional equipment. It also enables central network control of all the Dolby Screen Servers in a multiplex when deployed with a Dolby Show Library.

## Software Menu Options

**Monitor**

View-only screen that allows the user an at-a-glance status report of all auditoriums in the complex.

**Control**

Gives the user manual control of each Screen Server from anywhere in the complex.

**Content**

Allows the user to assemble entire shows (ads, trailers, cues, feature presentation) and manage or move content already loaded in the Dolby Screen Server, Dolby Show Library, or attached FTP storage servers.

**Schedule**

Allows the user to schedule all shows in a complex using a monthly calendar and to review intermission durations to avoid scheduling errors. Complete daily and even weekly scheduling in a few minutes.

**System**

Utilized during installation for configuring the entire system.

# DOLBY Show Library (DSL100)

**Dolby Show Library** is a high-capacity central server designed to facilitate the networking of a multiplex and meet its content storage needs. Dolby Show Library acts as the heart of your digital cinema network, giving you the ability to load all content at one central location, then distribute files electronically to networked Dolby Digital Cinema systems within the multiplex. For full specifications on the Dolby Show Library, contact Dolby Laboratories or visit dolby.com/digitalcinema.

# Installation Options: CP750, DMA8Plus, NA10

## CP750 Digital Cinema Processor

The CP750 Digital Cinema Processor is a key part of Dolby's digital cinema solution, combining high performance, practical functionality, and legendary Dolby quality. It accommodates eight digital audio channels from any cinema server, three additional digital sources of preshow and alternative content, and an existing film sound processor. It can be updated, controlled, and monitored remotely via your circuit's Wide Area Network to ensure glitch-free presentations. Dolby Digital 5.1, Dolby Digital Surround EX™, Dolby Pro Logic®, and Dolby Pro Logic II decoding are also included to deliver the best in surround sound before and during the show.

## DMA8Plus Digital Media Adapter

The Dolby DMA8Plus interfaces the Dolby Screen Server with a cinema's existing sound processor. It decodes the original digital audio to six analog channels compatible with the Dolby CP200, CP45, CP55, CP65, CP500, and most other processors. It can also be used with a CP650 processor not equipped with a Cat. No. 790 digital input card (and is not needed for CP650s that are).

## NA10 Network Automation Interface

The Dolby NA10 interfaces the Dolby Digital Cinema system with a cinema's existing automation system, enabling fully automated digital content presentations. Lighting, curtain, masking, and audio format changes can be scheduled for each show via the Dolby TMS software; as the show plays, the NA10 converts these digital cues to the electrical signals necessary to trigger various automation functions.

## Digital Cinema Installation Kit

**(Cat. No. 899-CP650, Cat. No. 899-DMA8)**

Includes such items as Ethernet cables, HD-SDI cables, digital audio cables, and Gigabit Ethernet switches (jumbo frame).

For full specifications on the CP750, DMA8Plus, and NA10, contact Dolby Laboratories or visit dolby.com/digitalcinema.

**REGULATORY NOTICES**

North America: These units comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules, and Industry Canada ICES-003 specifications. They are UL Listed for the US and Canada. Europe: These units comply with the requirements of Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC and carry the CE marking accordingly.

**WARRANTY**

One-year limited, parts and labor; see disclaimer. Specifications subject to change without notice.

**DISCLAIMER OF WARRANTIES**

Equipment manufactured by Dolby Laboratories is warranted against defects in materials and workmanship for a period of one year from the date of purchase. There are no other express or implied warranties and no warranty of merchantability or fitness for a particular purpose, or of noninfringement of third-party rights (including, but not limited to, copyright and patent rights).

**LIMITATION OF LIABILITY**

It is understood and agreed that Dolby Laboratories' liability, whether in contract, in tort, under any warranty, in negligence, or otherwise, shall not exceed the cost of repair or replacement of the defective components or accused infringing devices, and under no circumstances shall Dolby Laboratories be liable for incidental, special, direct, indirect, or consequential damages (including, but not limited to, damage to software or recorded audio or visual material), cost of defense, or loss of use, revenue, or profit, even if Dolby Laboratories or its agents have been advised, orally or in writing, of the possibility of such damages.

DOLBY

**Dolby Laboratories, Inc.**
100 Potrero Avenue, San Francisco, CA 94103-4813 USA T 415-558-0200 F 415-863-1373

**dolby.com**

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# DSV-J2™

## Event & Presentation Player

DSV-J2™

### 2D / 3D / HD / 2K / 4K Playback | JPEG2000 & MPEG2 MXF Playback

The DSV-J2 is a high quality 2D, 3D, and Stereoscopic digital playback device designed for large screen venues. The DSV-J2 supports resolutions up to 4K and features MPEG2 MXF and visually lossless JPEG2000 MXF file playback.

The DSV-J2 supports playback in High Definition (1920x1080), 2K (2048x1080) and optional 4K (4096x2160). 3D playback is supported in HD and 2K resolutions only. Super widescreen playback (Stereoscopic) is achieved by sending a unique SDI stream to each of two projectors.

The DSV-J2 features 8 channels of high quality uncompressed audio (48 KHz, 24 bits) via balanced digital AES/EBU or optional analog audio.

The DSV-J2 provides frame accurate LTC Time Code output to synchronize external equipment.

Each DSV-J2 includes the CineLister software that provides intuitive playlist capability with multi-day scheduling

**The Best in Digital Playback Servers**

doremi™

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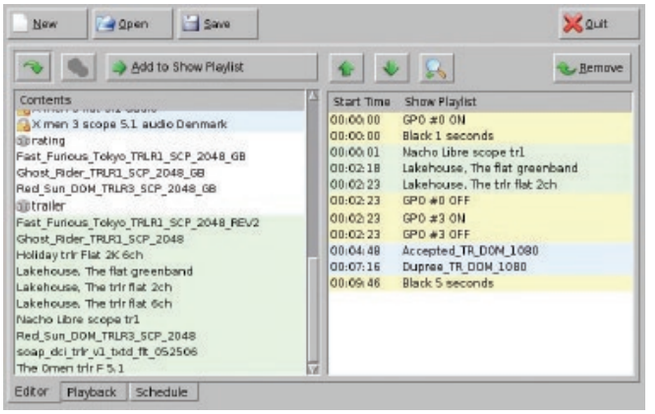
DSV-J2™

## SOFTWARE

### 4K Playback

Doremi Labs' optional MB-4K media block processor takes the dual-link HD-SDI outputs of the DSV-J2 and outputs a 4K resolution (4096x2160) image via 8 dual-link HD-SDI or four DVI connectors.




### CineLister Software

CineLister allows the user to build & execute playlists with multiple day, week, and month scheduling.

## SPECIFICATIONS

**PLAYBACK**
-JPEG2000 HD, 2K or 4K content file playback at HD, 2K resolution
-12-bit 444 (XYZ, RGB) on dual link HD-SDI (XYZ, RGB), and on DVI-D (optional)
-MPEG2 MXF HD content file playback
-JPEG2000 4K file playback at 4K resolution (optional)
-3D - JPEG2000 content and 48p playback via Dual 10-bit 422 (YPbPr/YCxCz)

**INTERFACE**
Gigabit Ethernet for file transfer
Gigabit Ethernet for control
USB2.0 for content loading

**STORAGE**
1000GB of RAID5 storage

**AUDIO**
AES/EBU 8 channels
-Single DB-25 connector
Analog Audio (optional)
-Balanced or Unbalanced 8 channels
-Single DB-25 connector external
1RU chassis

**GPIO**
8 optically isolated inputs
8 open collector outputs

**TIMECODE**
LTC time code output on BNC

**USER INTERFACE**
Front panel touchscreen (640x480)
with visual keyboard

**VIDEO OUTPUT**
Dual link HD-SDI
Single link HD-SDI (two provided)
DVI-D (optional external converter)

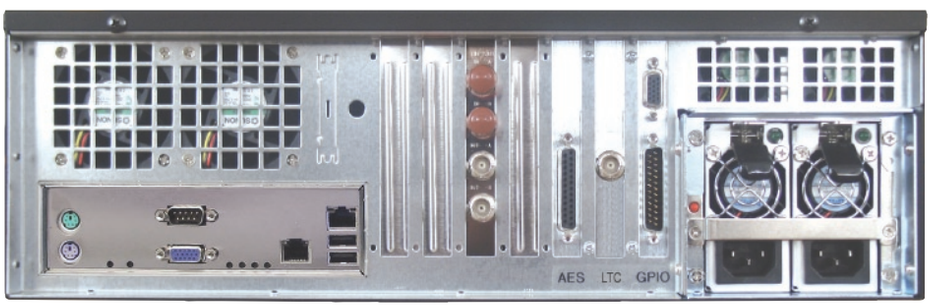
**OUTPUT RESOLUTION**
2048 x 1080 and 1920 x 1080
at 24, 25, 29.97 frame rates
12 Bit 4:4:4 via dual link HD-SDI

2048 x 1080 and 1920 x 1080
at 48, 50, 59.94 frame rates
10bit 4:2:2 via dual link HD-SDI

1280 x 720
at 48, 50, 59.94 frame rates
12bit 4:4:4 via dual link HD-SDI

**POWER**
Dual-Redundant Power Supply
100-240VAC 50-60Hz (350W max)

**DIMENSIONS**
3U Rack Unit
20.5" x 19" x 5.25" inch
(52 x 45 x 13 cm)

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# DC-Post™

## D-Cinema Server for Postproduction

**Variable Speed Playback | 3D Playback | 2K & 4K Playback | Subtitle Rendering**
**Shuttle / Jog / Skip / Chase Modes | CPL Authoring | 3TB RAID5 Storage**

The DC-Post cinema server is a modification of the popular DCP-2K4, one of the industry's first commercially available servers capable of playing JPEG2000 digital movies conforming to DCI specifications.

The DC-Post contains all the features of Doremi's standard digital cinema servers, but adds additional speed and functionality specifically suited for the postproduction workflow including:

-Playback of high bit rate, visually lossless 400Mb/s digital cinema packages (DCPs)
-Unpackaged JPEG2000 playback
- Up to 200% speed playback (picture, sound and subtitles in sync) forward or backward
-Individual 3D DCP eye stream playback (while rendering its subtitling)
-Fixed latency playback and external sync

An exciting feature of the DC-Post is the ability to render, adjust and edit SMPTE subtitles (2D and 3D) on the fly. Each unit is shipped with a CPL Authoring tool that allows for font customization, color selection, timing, fades, and defining the Z positon for 3D subtitles.

The DC-Post plays JPEG2000 and MPEG2 MXF files which brings an added layer of content security to the postproduction operation. It has a DVD-ROM and removable SATA ingest inputs as well as a gigabit Ethernet and USB ingest port for flexibility of how content in ingested from various sources.

Each DC-Post includes the CineLister software utility that provides easy scheduling and playlist administration. It can be networked to support playback from several theaters within the post house.

DC-Post™

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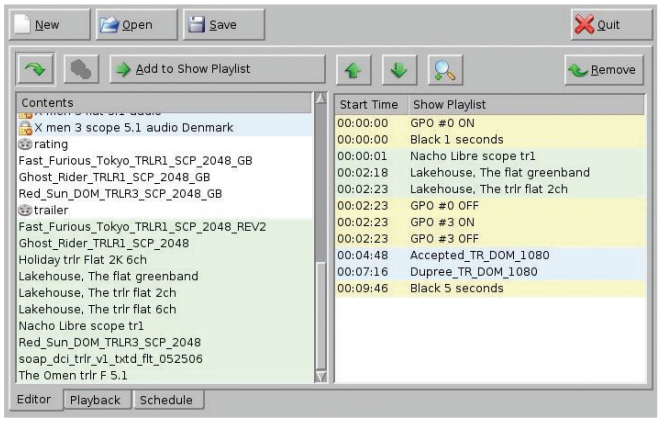
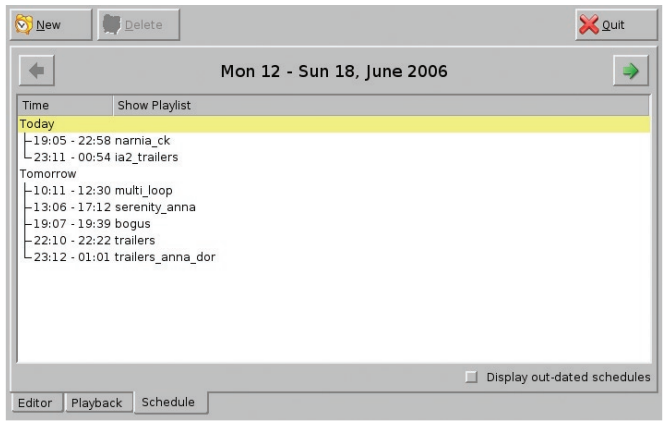
Specifications subject to change without notice.

DC-Post™

# CineLister SOFTWARE




CineLister allows the operator to build and play composition playlists as well as full session playlists. Playlists can include both JPEG2000 and MPEG2 movie files and pre-show content files. The graphic user interface simplifies the management of image files and creation of new image clips. CineLister's extensive playlist creation capability can be used for on-line playback and play list scheduling.

# SPECIFICATIONS

**PLAYBACK -** Visually lossless bitrate up to 400 MB/s
JPEG2000 2K or 4K movie and pre-show file playback at 2K resolution
12-bit 4:4:4 (XYZ, RGB) on dual link HD-SDI
MPEG2 MXF Interop movie, pre-shoe and alternative content file playback
JPEG2000 4K movie file playback at 4K resolution (option)
3D-JPEG2000 movies and 48p playback via dual 10-bit 4:2:2 (YPbPr/YCxCz)

**SECURITY**
TI's CineLink II Strong Link Encryption
Thomson's NexGuard Forensic Watermarking
FIPS 140-2 Level 3 Security Certified

**INTERFACE**
Gigabit Ethernet for file transfer
Gigabit Ethernet for control & subtitling
RS-4:2:2 serial control port
USB 2.0
External control of captioning devices
WGBH & PCS (option)

**STORAGE**
Up to 3TB of RAID5 storage

**AUDIO**
AES/EBU audio 16 channels
-Single DB-25 connector
Balanced or unbalanced analog audio 8 channels
(two options available)
-Single DB-25 connector internal board
-External digital audio (DB-25) to analog audio converter in a 1RU rack mount chassis

**GPIO**
8 optically isolated inputs
8 open collector outputs

**INGEST INPUTS**
USB
Ethernet
CRU SATA 2

**VIDEO OUTPUT**
Dual link HD-SDI with
physical link encryption

**OUTPUT RESOLUTION**
Dual link - 2048 x 1080 24p 4:4:4 12-bit
Two single links - 2048 x 1080 24p 4:2:2 10-bit

**POWER**
Dual redundant power supply
100-240VAC 50~60Hz (2x400W)

**DIMENSIONS**
4U Rack Units
19" x 22" x 7" inches
(48 x 56 x 19 cm)
Weight 48lbs/22Kg



Specifications subject to change without notice.

# DCP-2000™
## Digital Cinema Server

DCP-2000™

**Multi-File Playback | 2D & 3D Playback | 2K & 4K Playback**
**Enhanced Security | Captioning Device Control | CineLister**

The DCP-2000 cinema server provides superior reliability, image quality and an unmatched feature set. Each DCP-2000 reflects Doremi's thirteen years of image server design and manufacturing experience and the benefits of supporting the world's largest cinema server installation.

The DCP-2000 supports JPEG2000 and MPEG2 files. In addition it features REAL D, XpanD, Dolby and dual projector 3D playback, external control of captioning devices and 4K resolution playback.

Each DCP-2000 server includes the CineLister software utility that provides effortless scheduling and playlist administration. Playlists can include both JPEG2000 and MPEG2 movie files, and pre-show content files.

The DCP-2000 was the first commercially available server capable of playing JPEG2000 digital movies conforming to DCI specifications. Today, it is by far the most installed cinema server with over 6000 units worldwide.

**Any Screen, Any Projector, Any 3D System.**

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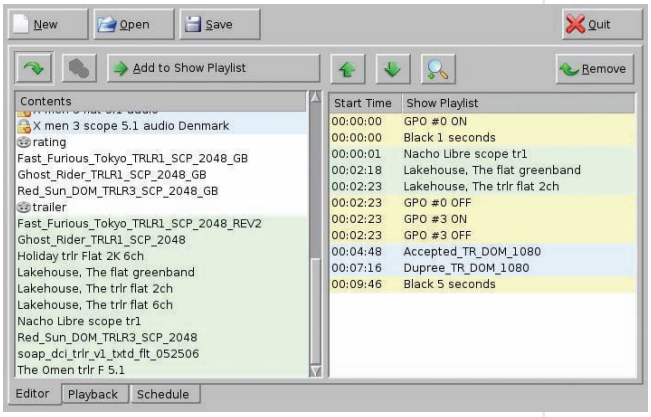
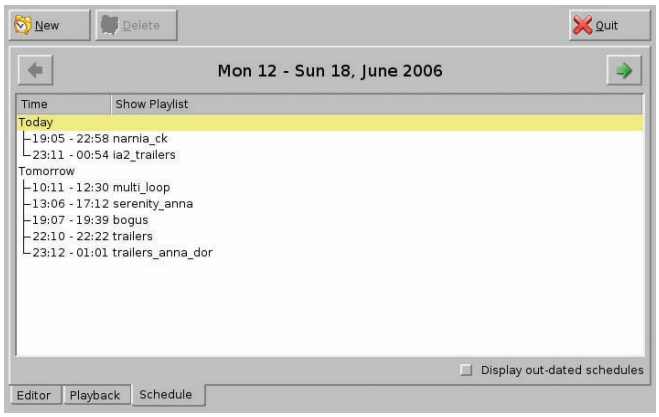
DCP-2000™

# CineLister SOFTWARE




*Event Editing Screen*




*Play List Scheduling Screen*

CineLister allows the operator to build and play composition playlists as well as full session playlists. Playlists can include both JPEG2000 and MPEG2 movie files and pre-show content files  The graphic user interface simplifies the management of image files and creation of new image clips. CineLister's extensive playlist creation capability can be used for on-line playback and play list scheduling.

# SPECIFICATIONS

## PLAYBACK
JPEG2000 2K or 4K movie and pre-show file playback at 2K resolution
  12-bit 444 (XYZ, RGB) on dual link HD-SDI
MPEG2 MXF interop movie, pre-show and alternative content file playback
JPEG2000 4K movie file playback at 4K resolution (option)
3D - JPEG2000 movies and 48p playback via Dual 10-bit 422 (YPbPr/YCxCz)

## SECURITY
TI's CineLink II  Strong Link Encryption
Thomson's NexGuard  Forensic Watermarking
Philips' CineFence  Forensic Watermarking
FIPS 140-2 Level 3 Security Certified

## INTERFACE
Gigabit Ethernet for file transfer
Gigabit Ethernet for control & subtitling
RS-422 serial control port
USB2.0
External control of captioning devices
    WGBH & PCS (Option)

## STORAGE
Up to 2TB of RAID5 storage

## AUDIO
AES/EBU audio 16 channels
 -Single DB-25 connector
Balanced or unbalanced analog audio 8 channels
 (two options available)
 -Single DB-25 connector internal board
 -External digital audio (DB-25) to analog audio
  converter in a 1RU rack mount chassis

## GPIO
8 optically isolated inputs
8 open collector outputs

## INGEST INPUTS
USB
Ethernet

## VIDEO OUTPUT
Dual link HD-SDI
 with physical link encryption

## OUTPUT RESOLUTION
-Dual link
  2048 x1080 24p 4:4:4 12-bit
-Two single links
  2048 x1080 24p 4:2:2 10-bit

## POWER
Dual-Redundant Power Supply
100-240VAC 50-60Hz ( 2x400W )

## DIMENSIONS
4U Rack Unit
19" x 22" x 7" inch
(48 x 56 x 19 cm)
Weight 48lbs/22Kg

Doremi Cinema LLC. Burbank, California USA
tel +1-818 562-1101 - www.doremicinema.com
Doremi Labs, Europe  Sophia Antipolis, France
tel +33 (0) 492 952 830 - www.doremilabs.fr
Doremi Labs LLC - Japan  Tokyo, Japan
tel +81 (0) 3 3370 0401 - www.doremilabs.co.jp

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DCP-2000 Broch. Version | Specifications may change without notice | CineFence is a trademark of Philips Electronics | Cinelink II is a trademark of Texas Instruments | NexGuard is a trademark of Thomson

# DCP-2K4™

## Digital Cinema Server

DCP-2K4™

**Multi-File Playback | 3D Playback | 2K & 4K Playback | Enhanced Security**
**Captioning Device Control | DVD & Removable SATA Ingest Inputs | CineLister**

The DCP-2K4 cinema server is a modification of the DCP-2000, which was the first commercially available server capable of playing JPEG2000 digital movies conforming to DCI specifications.

They both provide superior reliability, image quality and an unmatched feature set.

The DCP-2K4's 4U configuration includes DVD-ROM and removable SATA ingest inputs that give exhibitors additional flexibility on how they receive and ingest content at the screen level.

Like the DCP-2000, the DCP-2K4 plays JPEG2000 and MPEG2 MXF files. It also supports all of the latest 3D technologies including REAL D, XpanD, Sensio 3D, Dolby 3D, and dual-projectors 3D playback. External control of captioning devices and 4K resolution playback are also available.

Each DCP-2K4 server includes the CineLister software utility that provides effortless scheduling and playlist administration. Playlists can include both JPEG2000 and MPEG2 movie files, and pre-show content files.

Doremi servers are by far the most installed digital cinema server with over 6000 units worldwide.

**Any Screen, Any Projector, Any 3D System.**

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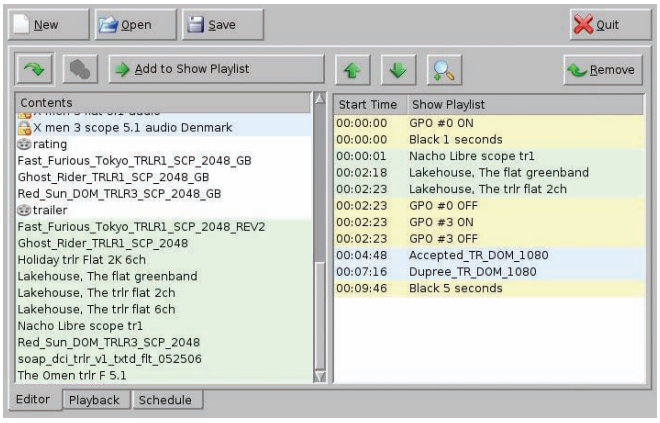
DCP-2K4™

# CineLister SOFTWARE

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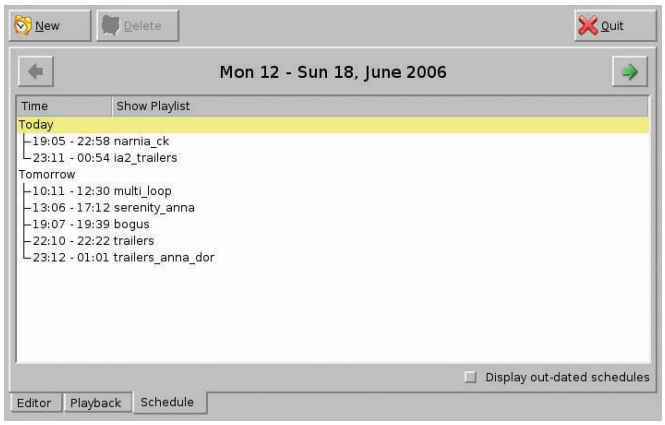


*Play List Scheduling Screen*

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External control of captioning devices
WGBH & PCS (Option)

### STORAGE
Up to 2TB of RAID5 storage

### AUDIO
AES/EBU audio16 channels
-Single DB-25 connector
Balanced or unbalanced analog audio 8 channels
(two options available)
-Single DB-25 connector internal board
-External digital audio (DB-25) to analog audio converter in a1RU rack mount chassis

### GPIO
8 optically isolated inputs
8 open collector outputs

### INGEST INPUTS
USB
Ethernet
CRU SATA 2
DVD-ROM

### VIDEO OUTPUT
Dual link HD-SDI
with physical link encryption

### OUTPUT RESOLUTION
-Dual link
2048 x1080 24p 4:4:4 12-bit
-Two single links
2048 x1080 24p 4:2:2 10-bit

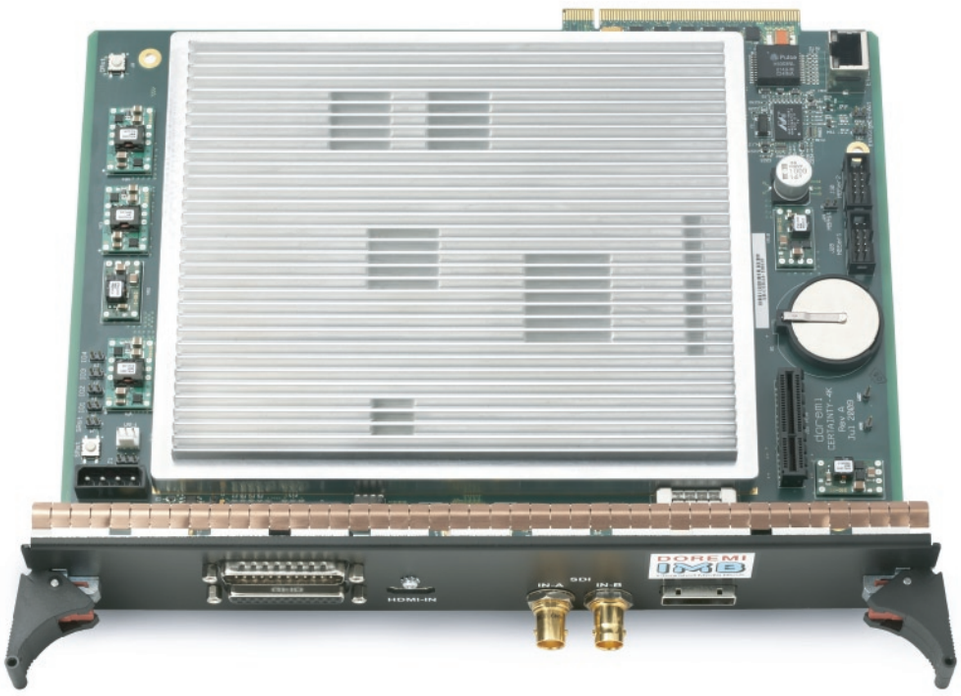
### POWER
Dual-Redundant Power Supply
100-240VAC 50-60Hz ( 2x400W )

### DIMENSIONS
4U Rack Unit
19" x 22" x 7" inch
(48 x 56 x 19 cm)
Weight 48lbs/22Kg


Doremi Cinema LLC. Burbank, California USA
tel +1-818 562-1101 - www.doremicinema.com
Doremi Labs, Europe Sophia Antipolis, France
tel +33 (0) 492 952 830 - www.doremilabs.fr
Doremi Labs LLC - Japan Tokyo, Japan
tel +81 (0) 3 3370 0401 - www.doremilabs.co.jp


doremi™ cinema

# IMB New!
## Integrated Media Block




The IMB (Integrated Media Block) utilizes Doremi's patent pending 4K media block technology. With the IMB installed in a DLP Series-II 4K-ready projector along with Doremi's external ShowVault™, customers can now choose the most future-proof digital projection solution in the industry. If the customer elects to project in 2K, the integrated media block keeps content secure by moving the digital video decryption from outside of the projector to inside the projector.

**SPECIFICATIONS**
-HDMI 1.3 Input with HDCP Support
-Dual 3G SDI Input
-8 Audio Pairs (through 2 RJ45 connectors)
-8 GPOs (RJ 45)
-4 GPI
-PCIe Connection + GBe Connection to Doremi ShowVault Server
-Output Resolution up to 4096 x 2160 in 2D and 2048 x 1080 in 3D

**SCALER FEATURES**
-HDMI/DVI (w/HDCP) or HDSDI (single or dual) inputs
-Scale all video resolutions to 2048 x 1080 or 4096 x 2160
-Deinterlacing support (1080i inouts)
-Automatic color space conversions

DOREMI IMB Integrated Media Block

doremi cinema™

Doremi Cinema LLC, 1020 Chestnut Street, Burbank, CA 91506 USA P: +1-818-562-1101 www.doremicinema.com

IMB Integrated Media Block

# ShowVault™ New!

## Cinema Storage & Show Control

Doremi's new ShowVault is a dedicated storage server capable of playing JPEG2000 digital movies that conform to DCI specifications. ShowVault was specifically developed to interface with Doremi's IMB (Integrated Media Block) which is available inside Series 2 DLP projectors making 2K & 4K playback possible.

The ShowVault has all the same features and functionality as Doremi's existing DCP series cinema servers and is available in two chassis configurations depending on user requirements.

ShowVault loads digital content from a networked central server via Ethernet or USB 2.0. It dispenses files electronically to the IMB via an external PCI Express cable. Using Doremi's pre-loaded CineLister software, ShowVault allows theater operators to easily program the entire movie schedule including on-screen advertising, trailers, features and announcements.

**INTERFACE**
External PCI Express (for IMB Communication)
Gigabit Ethernet for file transfer
Gigabit Ethernet for control and subtitling
RS-422 serial control port
USB 2.0

**STORAGE**
Up to 2TB of RAID5 storage

**POWER**
Dual-redundant power supply
100-240VAC 50-60Hz (350W max)

**DIMENSIONS**
19" x 20.5" x 5.25" (3RU)/
(48 x 52 x 13 cm)
19" x 11" x 7"(4RU)/
(48 x 56 x 19 cm)

**Think Inside the Box.**

doremi™ cinema

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ShowVault™

# AUD-D2A™

## Digital to Analog Audio Converter

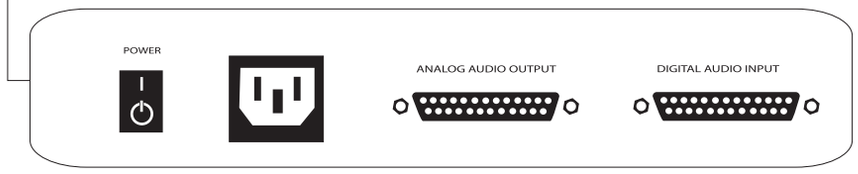
AUD-D2A™

Doremi Cinema's AUD-D2A converts digital audio to analog audio via DB-25 multi-pin connectors.

The AUD-D2A provides analog audio outputs instead of the digital audio outputs that are a standard feature of Doremi Cinema's DCP-2000 cinema server.

Two DB-25 cables and an AC cable are included.

*REAR PANEL*




**AUDIO INPUT**
AES/EBU Audio via DB-25F
8 Channels

**AUDIO OUTPUT**
Analog Audio via DB-25F
8 Channels

**POWER**
100-240V 0.5A MAX 50-60Hz

**DIMENSIONS**
1 Rack Unit
19" x 13" x 1.75" (504mm x 330mm x 43mm)

**Moving Digital Cinema Forward**

doremi™ cinema

Doremi Cinema LLC, 1020 Chestnut Street, Burbank, CA 91506 USA P: +1-818-562-1101 www.doremicinema.com

CineStore®

# Solo G3

### Interoperability for the content

CineStore® Solo G3 is a fully interoperable and future proofed DCI compliant advanced Digital Cinema Hybrid server offering both JPEG2000 and MPEG-2 play-back capabilities with seamless transition. Interoperability means that whoever provides the exhibitor with some content, in either the DCI recommended JPEG2000 or the widely used MXF Interop MPEG2 compression scheme, then the Solo G3 will be able to play it out. Of course this only happens if the exhibitor is granted the right to do it.

### Flexible and Upgradeable

CineStore® Solo G3 Digital Cinema Decoder is based on an innovative single chip FPGA solution capable of JPEG2000 and MPEG2 decoding, providing a real competitive advantage in front of the ASIC solutions. The FPGA can be fine-tuned and reprogrammed according to needs, which is not the case of the ASIC. MPEG2 being decoded within the same FPGA than JPEG2000 means that the security level provided is the same for both and is the one requested by the DCI.

### The CineStore® Solo is the heart of a Digital Cinema installation

On one side it receives the content on a standard mobile hard drive connected through Ethernet, e-SATA or USB2 link, as well as on the advanced SATA CineDisk media. On the other side it interfaces with any DLP Cinema™ projector with CineLink™. CineStore® Solo manages all the connections (GPI I/O, Ethernet or Serial) with the theatre automation systems. It also provides Gigabit Ethernet links to interconnect with the cinema network and exchange content with central libraries. It can switch the projector video sources and the audio sources.

### The state-of-the-art play-back system

The redundant internal storage can hold at least 20 hours in JPEG2000 and 40 hours of high quality content in MPEG2. The show editor assembles detailed show lists with pre-show ads, logos, teasers, trailers and movies. It incorporates theatre automation cues: sound and light level, intermission, curtains... The play-back engine automatically manages multiple content formats, title versions, languages and subtitling.

### Digital Cinema: security is the key point

Security on the Solo is among the best on the market. It allows the distributors to provide the exhibitor with their digital content in complete confidence. This precious content is protected all the way from post-production to exhibition. The movies remain securely stored in their original encrypted form until playback time. During playback, they are decrypted on the fly through the internal system. Before being provided to the projector, the content is watermarked, enabling piracy to be tackled. It targets a level of security equal to the FIPS140-2 level 3.

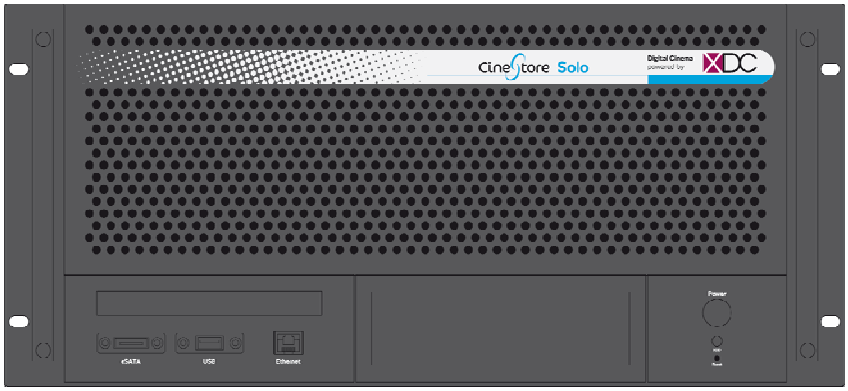
### The CineStore® Solo: an integrated service platform.

The system is built with an advanced integrated monitoring system. It informs the projectionist of the projector status, the integrity of the delivered content, key validity ...
Moreover, the Solo server is an integrated service platform collecting and delivering all kinds of technical information to the XDC Network Operating Centre (NOC). These automatic system health reports can be generated and sent to the CineStore® Data – XDC's central management system – to allow pro-active preventive maintenance actions. Corrective support actions can also be carried out remotely through CineStore® Data enhanced tools.

# *CineStore® Solo G3 interfaces*

## Front Panel: the Ingest Interfaces

- Internal SATA CineDisk for high speed ingest with auto powered media, physically interoperable with other server manufacturers
- External e-SATA disk interface.
- External USB 2.0 disk or key interface.
- Ethernet interface for future proofed external Ethernet Hard Disks.
- DVD-ROM for advert or low resolution content.




## Rear Panel: the Theater Interfaces

### User interface

- PS-2 or USB ports for additional keyboard and mouse.
- 15 pin high density for VGA, 15 inches Touch Screen or regular Monitor

### Projector

- Dual HD-SDI interfaces for 2k content,
- Dual-Dual HD-SDI for future 4k integration (optional)

### Audio

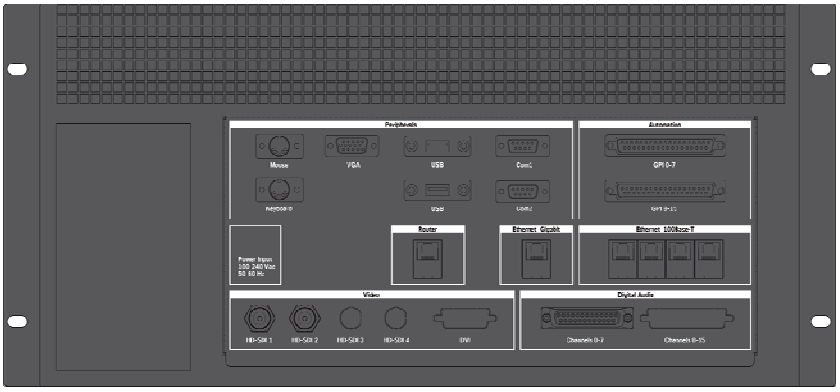
- 1 DB25 connection for 8 digital channels
- 1 DB25 connection for 8 additional digital channels required by DCI (optional)

### Theater Automation

- 16 GPIO In/Out for theater automation control
- 2 RS-232 interface for audio and projector control
- 100 base-T RJ-45 Ethernet connections for projector control

### Theater Local Area Network

- 100 base-T RJ-45 Ethernet connections for control and Plaza TMS communication
- 1000 base-T RJ-45 Ethernet connections for content download from the central library



# *Physical deliveries*

## CineStore Solo G3

- Image Media Block currently targeting DCI compliancy including Philips CineFence™ forensic marking, JPEG2000, MPEG2 decoding and AES decryption. 3D feature included
- High quality and robust chassis specifically designed for digital cinema
- State-of-the-art electronic components with its operating system
- 16 GPI I/O automation interface board
- DVD ROM for ingesting content
- Embedded high speed SATA bay for high speed DCP ingest, avoiding the need of power supply cables.
- e-SATA external connector for high speed DCP ingest
- USB2.0 connector for low speed DCP ingest or KDM
- Gigabit Ethernet communication board
- RAID-5 controller with 1Terabyte net storage on four 500Gbytes disks including one hot spare for a transparent reconfiguration in case of failure.
- Hardware firewall
- High quality 15" robust touch screen designed for industrial applications or regular TFT 15" monitor with keyboard and mouse

## Miscellaneous

- Screen to server interface cables
- RJ-59 HD-SDI cables from server to projector
- DB25 digital audio connectors linking CineStore Solo and CineStore Audi or sound processor
- DB37 GPI I/O cable
- Power supply cables

# *Technical features*

| Feature | | Functionality | Notes |
|---|---|---|---|
| Picture format | ✓ | 1920x1080 / 24p / 4:2:2 / 10bits | |
| | 🔧 | 1920x1080 / 25p / 4:2:2 / 10bits | |
| | 🔧 | 1920x1080 / 30p / 4:2:2 / 10bits | |
| | + | 2048x1080 / 24p / 4:4:4 / 12 bits | |
| | 🔧 | 2048x1080 / 48p / 4:4:4 / 12 bits | |
| | 🔧 | 4096x2160 / 24p / 4:4:4 / 12 bits | |
| | 🔧 | HD Interlaced | |
| Video Outputs | ✓ | Single link HD-SDI | |
| | ✓ | Dual link HD-SDI | |
| | ✓ | 3D Stereoscopic double single HD-SDI | |
| | 🔧 | Dual-Dual link HD-SDI | |
| MPEG2 Picture Compression | + | MPEG2 **MP@HL**, extended up to 160 Mbps | 4:2:0, 8 bits, YCbCr. |
| | ✓ | Variable Bit Rate / Constant Bit rate | |
| | ✓ | Long GOP / I only (Short GOP) | Long GOP enables up to 30% additional file size savings |
| JPEG 2000 Picture Compression | ✓ | JPEG2000 : 2K, extended up to 250 Mbps | 4:4:4, 12 bits, X'Y'Z'. |
| | 🔧 | JPEG2000 : 4K, extended up to 250 Mbps | 4:4:4, 12 bits, X'Y'Z'. |
| Audio format | 🔧 | Uncompressed 96 kHz / 24 bits per sample | Up to 16 channels, |
| | ✓ | Uncompressed 48 kHz / 24 bits per sample | 8 channels |
| | ✓ | Configurable audio delay | From 0 to 3 seconds |
| Audio I/O | ✓ | 8x Unbalanced Analog Outputs (Dolby Level) | DB25 connector out of the Audi |
| | 🔧 | 16x Balanced Digital Outputs | Out of the Solo G3 |
| | 🔧 | 16x Balanced Analog Outputs | Out of the Audi |
| | ✓ | 2x 8x Unbalanced Analog Inputs (Pass Through) | DB25 connector. |
| | ✓ | Multiple sources switching | Remote controlled from the Solo |
| | | | |
| Subtitle Format | ✓ | TI CineCanvas™ | Timed text & PNG sub-picture.<br>Available only with DLP-Cinema projectors. |
| | 🔧 | Sub-picture overlay | |
| Packaging Format | ✓ | DCP MXF Interop (Mpeg2 & Jpeg2000) | Disney MXF Interop compliant |
| | 🔧 | DCP MXF SMPTE (Jpeg2000) | |
| | 🔧 | DVB TS | |
| | ✓ | KDM Transitional 1 SMPTE | |
| | | | |
| Composition | ✓ | Multi-Reel / Multi Language / Multi Version | Reel to reel seamless splicing |
| | ✓ | Multi Composition Sequencing | Easy pre-composed list handling (typ. advertisement) |
| Ingest | ✓ | Ingest from media or external library | Fully automatic media and content detection |
| | 🔧 | Ingest speed management | From 15 to 65MB/s, with automatic speed selection |
| | ✓ | PKL, CPL, player's KDM | Signature and Hash code (SHA1,SHA256) verification |
| | ✓ | Multiple Time Window | Possibility to extend or to get spotted projection period |
| Content Management | ✓ | Local Import/Delete | Semi automatic |
| Media | ✓ | CineDisk SATA | XDC Mobile Media |
| | ✓ | e-SATA; USB2 & 1000BT Mobile Hard Drive | |
| | ✓ | DVD | |
| | 🔧 | LAN Directory Access | Through Gbit Ethernet Connection |
| | 🔧 | Media and Data Integrity Check | MediaChecker |
| Forensic Marking | ✓ | DCI Invisible Forensic Marking | Philips CineFence validated |
| | ✓ | MXF Interop Watermarking | PNG based |
| DCI Security | ✓ | Secure Communication | ITM over TLS |
| | 🔧 | Secure Image Media Block, FIPS140-2 level3 certified | Embedded Security Manager (SM), Media Decryptor (MD), Forensic Marker (FM), Link Encryptor (LE) Cinelink™ 2, Secure Clock. |
| | + | Secure IMB Firmware update | |
| | + | Secure Logs and Audits | |
| | ✓ | Entitlement | System, Content, Key, TWw secure validation |

Legend:

| + | ✓ | | 🔧 |
|---|---|---|---|
| New Feature | Fully validated | Under Test | Work in Progress, Future Option |

The graphical user interfaces are designed specifically to ease operational constrains in the cinema booth. These are the results of years of feedback from operational people who are working with the system every day.

When operating the Digital Cinema complex, you make the most of the easy-to-use touch screen user interface.

Thanks to the ergonomic user interface design, even very advanced operations, like show edition can be performed trough the easy to use touch screen interface.

Hybrid JPEG2000/MPEG2
Digital Cinema Server

CineStore® Solo G3

The heart of a state of the art digital cinema installation

**Digital Cinema**
powered by

XDC

# CineStore® Solo G3

## The first DCI/SMPTE compliant decoder with FPGA !

### User-friendly projectionist interface

The user interface of the CineStore® Solo G3 is the easiest one available on the market, thanks to its 15" touchscreen control panel

### Interoperable going to DCI/SMPTE Compliancy

CineStore® Solo G3 is a fully Interoperable and DCI compliant advanced Digital Cinema Hybrid server offering both JPEG2000 and MPEG2 playback capabilities with flawless transition. Interoperability means that whoever provides the exhibitor with content, in either JPEG2000 or MXF Interop MPEG2 compression scheme, (and that the exhibitor has the rights to play it), then the Solo G3 will be able to play it out.

### Upgradeable

CineStore® Solo G3 Digital Cinema Decoder is the first one to be based on the innovative FPGA solution capable of JPEG2000 and MPEG2 decoding, providing a real competitive advantage in comparison with the ASIC solutions. Indeed, the server is easily upgradeable by reprogramming the FPGA.

### Flexible and fully integrated into cinema environment (automation)

On one side it receives the content on standard mobile hard drive connected through Ethernet, e-SATA or USB2 link, as well as on the advanced High Speed CineDisk media. On the other side it interfaces any DLP Cinema® projector with CineLink™ or any other video projector. The CineStore® Solo manages all the connections (GPI I/O, Ethernet or Serial) with the cinema automation systems. It also provides Gigabit Ethernet links to interconnect with the cinema network and/or pre-show server and exchange content with central libraries.

### State of the art playback system

The redundant internal storage can hold at least 20 hours in JPEG2000 and 40 hours of high quality content in MPEG2. The show editor assembles detailed show lists with pre-show ads, logos, teasers, trailers and movies. It incorporates the entire cue for cinema automation: sound and light level, intermission, curtains... The playback engine manages automatically multiple content formats, title versions, languages and subtitling.

### Secure system

The security of the Solo is among the best on the market. It allows the distributor to provide the exhibitor with their digital content in complete confidence. This precious content is protected all the way from post-production until exhibition. The movies stay securely stored within original encrypted form until the playback time. During playback, they are decrypted on the fly through the internal system. Before being provided to the projector, the content is forensically marked.

### Connected to XDC Network Operations Centre for online support and assistance (7/7 Helpdesk), as well as upgrades

The system is built with an advanced in tegrated monitoring system. It informs the projectionist of any troubleshooting of the projector, the integrity of the delivered content, the key validity... Moreover, the Solo server is an integrated service platform collecting and delive ring technical service quality information to the XDC Network Operations Centre (NOC). These automatic system health reports are generated and sent to CineStore® Data – XDC's central management system – to pro vide proactive preventative maintenance actions. Remedial support actions, as well as upgrades, are also carried out remotely through CineStore® Data enhanced tools. CineStore® Solo G3 can also be remotely controlled via the CineStore® Plaza – XDC's Theatre Management System.

CineStore® Audi

CineStore® Solo G3 is equipped with the CineStore® Audi, newly developed by XDC. This unit provides the interconnection of the CineStore® Solo G3 to the cinema audio B-chain: digital to analog conversion, external analog audio source inputs and high quality signal isolation to avoid unexpected noise.

**XDC International**
Liege Science Park - Avenue du Pre Aily, 6 - 4031 ANGLEUR - BELGIUM
Tel. : +32 4 364 12 00 - Fax : +32 4 364 12 99 - info@xdcinema.com
**www.xdcinema.com**

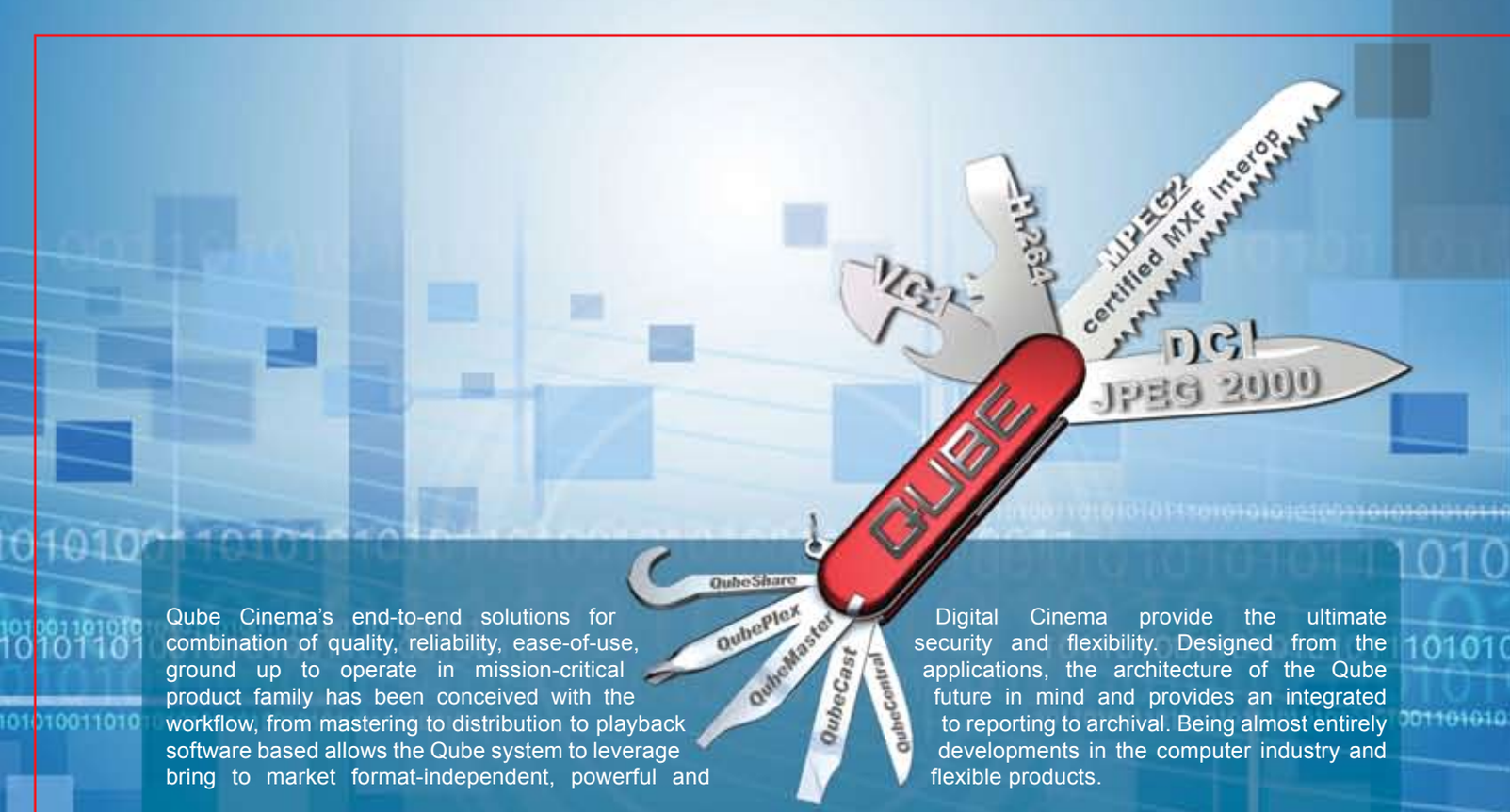
**Digital Cinema** powered by XDC

# The only one that does it all.

QUBE

Digital Cinema

www.qubecinema.com




Qube Cinema's end-to-end solutions for Digital Cinema provide the ultimate combination of quality, reliability, ease-of-use, security and flexibility. Designed from the ground up to operate in mission-critical applications, the architecture of the Qube product family has been conceived with the future in mind and provides an integrated workflow, from mastering to distribution to playback to reporting to archival. Being almost entirely software based allows the Qube system to leverage developments in the computer industry and bring to market format-independent, powerful and flexible products.

Qube Cinema has an entire suite of products required for a practical, commercially viable, end-to-end implementation of Digital Cinema. Qube Cinema is a company that has proven expertise in managing complex technology transformations in traditional workflows; a company with a passion for cinema and a thorough understanding of film, video, audio and computer technology as well as the production, post-production and exhibition industries.

The **Qube XP Digital Cinema Server** is the core component of the Qube system that plays picture and sound, and provides theatre-automation support. Redundant power supplies and RAID hard drives bring a high level of reliability to the system while a detachable Qube Remote Panel provides familiar operational controls such as Play, Pause and Stop along with an LCD Display and Menu Keys. Unlike more complex interfaces such as touch-screens or the mouse and keyboard, the Qube Remote Panel is a simple, familiar hardware interface that makes projectionists feel instantly comfortable with the system.

The second generation Qube software is database driven and has a flexible core media architecture that can work with multiple copies of picture, sound, subtitling and metadata files stored on local and shared central storage systems. Qube Cinema is based on the modular Microsoft Windows XP™ Embedded Operating System to maximize reliability and security while deriving benefit from Microsoft's powerful DirectShow™ architecture.

Qube XP-D is aimed at the DCI compliant D-cinema market and has two CineLink™ 2 equipped dual-link HD-SDI outputs and AES3 audio outputs apart from providing optional analog audio outputs and automation support through GPI inputs and outputs.

The Qube XP-D server is standards-based and designed for interoperability. It has been certified to conform to the MXF Interop Specification and utilizes DCI specified MXF containers with 128-bit AES encryption for media, and xml for compositions and shows. 2048-bit RSA encryption is utilized for keys. Watermarking support is optionally available using both Thomson and Phillips technologies.

The base system handles DCI JPEG2000 in both 24 fps and 48 fps frame rates, high bit-rate MPEG 2 and VC1 picture while also being expandable with additional software codecs. Audio is uncompressed 16 bit or 24 bit at 48 KHz and 96 KHz. Whether for pre-show or feature playback, Qube Cinema has the flexibility to support it all.

Qube Cinema supports subtitling in the CineCanvas™ file format. Subtitles can be internally rendered or can be sent along with timing information to a DLP Cinema™ projector over Ethernet.

Media transport is possible using portable USB-2 hard drives, high-speed data lines and optionally, satellite multicast transmissions.

Qube XP Servers can manage media completely automatically by deleting older, unused media when additional space is required to ingest new media. This again makes the system entirely automatic in operation for the projectionist and theatre manager and considerably simplifies their lives while reducing the possibility of human-error.

Qube XP systems can be managed and operated locally and remotely via a powerful web-based UI which shows status and, with the proper login credentials, allows transport control, scheduling, content ingest, key management as well as setup and maintenance. System logs can also be viewed over the web interface and are signed for verification of authenticity.

## QubeMaster Xpress

When your cinema goes digital, will you lose your freedom? Your freedom to add statutory messages; to screen custom slides; to instantly show local commercials... Not if you have the powerful and easy-to-use QubeMaster Xpress! Now you can convert your slides, animations and videos into ready-to-use Digital Cinema Packages (DCPs) that will work on any digital cinema server! QubeMaster Xpress effortlessly guides you through the process of converting JPEG, TIFF, TGA and BMP images, Flash animations as well as AVI and Quicktime movies into standards compliant DCPs in DCI JPEG2000 and MPEG-2 MXF Interop formats.

## QubeMaster

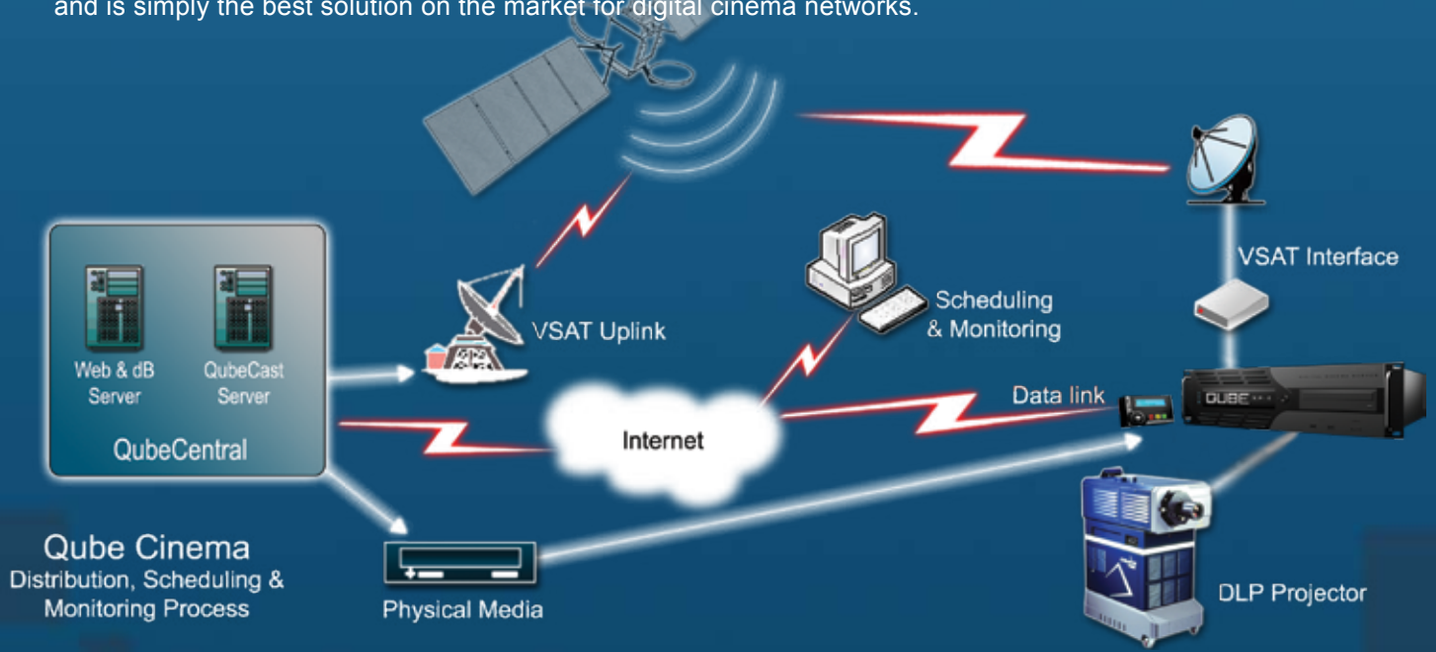
QubeMaster is a software-based Digital Cinema packaging solution designed to integrate fully into a modern post environment. QubeMaster imports or digitizes picture and sound and encodes into all supported image compression formats including JPEG2000, MPEG 2 and Windows Media 9. The system can also perform DCI specified encryption simultaneously. QubeMaster provides a very powerful mastering interface which allows *Track Files* to be added to the database; picture, sound and subtitles to be synced accurately to form *Reels*; Reels to be chained together to form *Compositions*; and *Shows* to be created using one or more Compositions. The system produces standards compliant *Digital Cinema Packages* (DCPs) and *Key Delivery Messages* (KDMs) for distribution to digital screens. QubeMaster also allows for Compositions to be edited for censorship or the localization requirements of different territories.

## QubeCentral

QubeCentral is a web-based digital cinema network control, management and reporting system that also provides movie-on-demand download scheduling, and transparently and securely transmits access control keys. The system can be used to centrally schedule commercials and it provides password-protected online access to as-run logs and the health status of units in the field.

## QubeCast

QubeCast is a unique media transmission system which uses Digital Fountain's patented wirespeed delivery technology to securely move media over satellite and broadband networks much more efficiently than conventional IP based technologies such as ftp. QubeCast can handle both multicast and point-to-point transfers and is simply the best solution on the market for digital cinema networks.



## QubeShare

QubeShare is a shared storage solution for multiplexes with 4 TB of RAID 5 storage and Gigabit Ethernet connectivity. Multiple Qube XP Servers can be connected to a single QubeShare and directly play shared media. Designed to be housed in a secure central location such as the Manager's office or in an IT server room, QubeShare is managed remotely and is a high-availability system that requires virtually no maintenance.

## QubePlex

QubePlex is the central management system with status monitoring and control for every digital screen in the multiplex. QubePlex can be installed on any computer in the network and provides all technical personnel in the theatre instant feedback on the status of all screens while providing the manager or projectionist remote control over each individual screen.

### Qube XP-D Technical Specifications

| | |
|---|---|
| Digital Image Output: | 2 x Dual-link HD-SDI (2 x SMPTE 292M),<br>4 x 75 ohms BNC with TI CineLink™ 2 encryption |
| UI Monitor Output: | DVI-I and HDMI connectors( monitor optional) |
| Audio Output: | 25-pin HD Connector with 8 x AES3 Output Pairs<br>25-pin D-sub Connector for 8-chan Analog Audio Output |
| Image Compression: | DCI JPEG2000<br>MPEG-2 4:2:0 & 4:2:2<br>VC1 4:2:0 |
| Image Resolution: | 2048x1080P, HD 1080P |
| Frame Rates: | 23.97, 24, 25, 29.97, 30, 48, 50 fps |
| Stereoscopic Picture: | 48 fps Single Track File format |
| Audio Compression: | Linear PCM Audio |
| Audio Sampling: | 48 KHz and 96 KHz, 16 and 24-bit |
| File Formats: | MXF packaging for track files<br>xml packaging for compositions and shows |
| Subtitling: | Multi-lingual subtitling in the TI CineCanvas™ format |
| I/O Ports: | Gigabit Ethernet Port, RJ-45 x 1<br>USB 2.0 Ports x 6<br>eSATA Port x 1<br>Mouse/Keyboard ports |
| GPI: | optional, 8 opto-isolated inputs and 8 relay outputs |
| Storage: | 1 TB RAID 5 storage |
| Security: | 128-bit AES Encrypted Content<br>Start/End Date control by 2048-bit RSA Encrypted Keys |
| Picture Watermarking: | optional Thomson NexGuard™ or Philips CineFence™ |
| Projectionist Interface: | USB Controller with<br>Play, Pause, Stop and Menu Buttons<br>with 40 char x 2 line LCD Status Display |
| Management Interface: | Multi-function web-based Interface<br>with System Status, Transport Control, Show Builder<br>Scheduling, Content Ingest, Key Management,<br>Log Viewer and System Setup/Maintenance |
| Power Supply: | 100-240V AC 50/60Hz, 350W<br>dual-redundant power supply standard |
| Operating Temperature: | 10 to 40 degrees C |
| Operating Humidity: | 20% to 90% non-condensing |
| Size: | Main Unit – 48.5 cm (W) x 13.8 cm (H) x 67.5 cm (D)<br>3U Rack Mountable Unit<br>Remote Panel – 9.5 cm (W) x 4.0 cm (H) x 14.8 cm (D) |
| Weight: | Main Unit – 21.3 Kg<br>Remote Panel – 0.6 Kg<br>Packed – 30.0 Kg |

Specifications mentioned herein are subject to change without notice due to continuous product development

**Qube Cinema, Inc.**
4640 Lankershim Boulevard, Suite 601, North Hollywood, CA 91602-1844, USA
Tel: +1 (818) 392-8155 | Fax: +1 (818) 301-0401 | email:qubeinfo@qubecinema.com | www.qubecinema.com

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# QUBE

Digital Cinema

## Only The one that does it all.

Qube Cinema's end-to-end solutions for Digital Cinema provide the ultimate combination of quality, reliability, ease-of-use, security and flexibility. Designed from the ground up to operate in mission-critical applications, the architecture of the Qube product family has been conceived with the future in mind and provides an integrated workflow, from mastering to distribution to playback to reporting to archival. Being almost entirely software based allows the Qube system to leverage developments in the computer industry and bring to market format-independent, powerful and flexible products.

Qube Cinema has an entire suite of products required for a practical, commercially viable, end-to-end implementation of Digital Cinema. Qube Cinema is a company that has proven expertise in managing complex technology transformations in traditional workflows; a company with a passion for cinema and a thorough understanding of film, video, audio and computer technology as well as the production, post-production and exhibition industries.

The **Qube XP Digital Cinema Server** is the core component of the Qube system that plays picture and sound and provides theatre-automation support. Redundant power supplies and RAID 1,0 hard drives bring a high level of reliability to the system while a detachable Qube Remote Panel provides familiar operational controls such as Play, Pause and Stop along with an LCD Display and Menu Keys. Unlike more complex interfaces such as touch-screens or the mouse and keyboard, the Qube Remote Panel is a simple, familiar hardware interface that makes projectionists feel instantly comfortable with the system.

The second generation Qube software is database driven and has a flexible core media architecture that can work with multiple copies of picture, sound, subtitling and metadata files stored on local and shared central storage systems. Qube Cinema is based on the modular Microsoft Windows XP™ Embedded Operating System to maximize reliability and security while deriving benefit from Microsoft's powerful DirectShow™ architecture.

Qube XP-E is aimed at the E-cinema and Pre-show market and has a DVI picture output and analog audio outputs.

The Qube XP server is standards-based and designed for interoperability. The system utilizes DCI specified MXF containers with 128-bit AES encryption for media and xml for compositions and shows. RSA encryption is utilized for keys.

The base system handles high bit-rate MPEG 2 pictures and also supports Windows Media 9 and is expandable with additional software codecs. Audio is uncompressed 16 bit or 24 bit at 48 KHz and 96 KHz. Whether for pre-show or feature playback, Qube Cinema has the flexibility to support it all.

Qube Cinema supports subtitling in the TI CineCanvas™ file format and subtitles are internally rendered for display along with the picture using high quality fonts.

Media transport is possible using portable USB-2 or 1394a/b hard drives, high-speed data lines and satellite multicast transmissions. Qube XP Servers can manage media completely automatically by deleting older, unused media when additional space is required to ingest new media. This again makes the system entirely automatic in operation for the projectionist and theatre manager and considerably simplifies their lives while reducing the possibility of human-error.

Qube XP systems can be managed and operated locally and remotely via a powerful web-based UI which shows status and, with the proper login credentials, allows transport control, scheduling, content ingest, key management as well as setup and maintenance. System logs can also be viewed over the web interface and are signed for verification of authenticity.

## Qube XP-E Technical Specifications

| | |
|---|---|
| Digital Image Output: | DVI & HDMI with HDCP Encryption |
| UI Monitor Output: | DVI-I and HDMI connectors( monitor optional) |
| Audio Output: | 25-pin D-sub Connector for 8-chan Analog Audio Output |
| Image Compression: | MPEG-2 4:2:0 & 4:2:2<br>Windows Media 9 4:2:0 |
| Image Resolution: | Variable from SD PAL/NTSC to HD 1080P to 2K |
| Frame Rates: | 23.97, 24, 25, 29.97, 30, 50, 59.94 & 60 fps |
| Audio Compression: | Linear PCM Audio<br>Windows Media Audio |
| Audio Sampling: | 44.1 KHz, 48 KHz and 96 KHz, 16 and 24-bit |
| File Formats: | MXF packaging for track files<br>xml packaging for compositions and shows |
| Subtitling: | Multi-lingual subtitling in the TI CineCanvas™ format |
| I/O Ports: | Gigabit Ethernet Port, RJ-45 x 1<br>RS-232 Serial Port, 9-pin D-sub x 1<br>USB 2.0 Ports x 6<br>eSATA Port x 1<br>Mouse/Keyboard ports |
| GPI: | optional, 8 opto-isolated inputs and 8 relay outputs |
| Storage: | 500 GB RAID 1,0 storage |
| Security: | 128-bit AES Encrypted Content<br>Start/End Date control by 2048-bit RSA Encrypted Keys |
| Picture Watermarking: | optional Thomson NexGuard™ on MPEG-2 content |
| Projectionist Interface: | USB Controller with<br>Play, Pause, Stop and Menu Buttons<br>with 40 char x 2 line LCD Status Display |
| Management Interface: | Multi-function web-based Interface<br>with System Status, Transport Control, Show Builder<br>Scheduling, Content Ingest, Key Management,<br>Log Viewer and System Setup/Maintenance |
| Power Supply: | 100-240V AC 50/60Hz, 450W<br>dual-redundant power supply standard |
| Operating Temperature: | 10 to 40 degrees C |
| Operating Humidity: | 20% to 90% non-condensing |
| Size: | Main Unit – 48.5 cm (W) x 13.8 cm (H) x 67.5 cm (D)<br>3U Rack Mountable Unit<br>Remote Panel – 9.5 cm (W) x 4.0 cm (H) x 14.8 cm (D) |
| Weight: | Main Unit – 20.30 Kg<br>Remote Panel – 0.56 Kg<br>Packed – 30.00 Kg |

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GB

# Designed for flexibility
# Engineered for the long haul

# QUBE XP-D

## SERIES 2

QUBE
Digital Cinema

www.qubecinema.com

Today, if there are less than a handful of companies across the world that are working to fulfill the exacting needs of DCI, there are fewer still who look beyond. Qube Cinema is committed to creating a seamless world of Digital Cinema with products that are innovative, powerful, reliable and cost-effective.

Qube Cinema's end-to-end solutions for Digital Cinema provide the ultimate combination of quality, reliability, ease-of-use, security and flexibility. Designed from the ground up to operate in mission-critical applications, the architecture of the Qube product family has been conceived with the future in mind and provides an integrated workflow, from mastering to distribution to playback to reporting to archival. Being largely software based allows the Qube system to leverage developments in the computer industry and bring to market format-independent, powerful and flexible products.

Qube Cinema has an entire suite of products required for a practical, commercially viable, end-to-end implementation of Digital Cinema. Qube Cinema is a company that has proven expertise in managing complex technology transformations in traditional workflows; a company with a passion for cinema and a thorough understanding of film, video, audio and computer technology as well as the production, post-production and exhibition industries.

The **Qube XP Digital Cinema Server** is the core component of the Qube system that plays picture and sound, and provides theatre-automation support. Redundant power supplies and RAID hard drives bring a high level of reliability to the system while a detachable Qube Remote Panel provides familiar operational controls such as Play, Pause and Stop along with an LCD Display and Menu Keys. Unlike more complex interfaces such as touch-screens or the mouse and keyboard, the Qube Remote Panel is a simple, familiar hardware interface that makes projectionists instantly comfortable with the system.

The second generation Qube software is database driven and has a flexible core media architecture that closely follows the DCI Object Model. The Qube XP Server is based on the modular Microsoft Windows Embedded™ Operating System to maximize reliability and security while deriving benefit from Microsoft's powerful DirectShow™ architecture.

The Qube XP-D is a DCI compliant product and has two dual-link HD-SDI outputs with CineLink™ 2 encryption, 16 channels of AES3 audio output, optional 8 channels of analog audio output as well as automation support through Serial, IP and optional GPIO.

The Qube XP-D server is standards-based and designed for DCI compliance and interoperability. It has been certified to conform to the MXF and JPEG2000 Interop Specifications and utilizes DCI specified MXF containers with 128-bit AES encryption for media, and XML for compositions and shows. 2048-bit RSA encryption is utilized for keys. Forensic watermarking support is standard on all Qube XP-D systems with Civolution NexGuard™. The system works with both TI Series I and Series II DLP Cinema™ projectors.

The base system handles DCI JPEG2000 in both 24 fps and 48 fps frame rates, high bit-rate MPEG 2 and VC1 picture while also being expandable with additional software codecs. Audio is uncompressed 16 bit or 24 bit at 48 KHz and 96 KHz. Whether for pre-show or feature playback, the Qube XP server has the flexibility to support it all in the same box.

Qube XP-D servers also support multiple stereoscopic 3D systems. Dual Projectors with dual-link 12-bit 4:4:4 output to both projectors, Master Image and XpanD support is standard while Dolby 3D™ and Real-D™ support is optional. Subtitling is supported in the CineCanvas™ file format. Subtitles can be internally rendered or can be sent along with timing information to a DLP Cinema™ projector over Ethernet.

Media transport is possible using portable USB-2 hard drives, high-speed data lines and optionally, satellite multicast transmissions. An included CRU DataPort™ receiver allows easy ingest from standard removable drives currently in use worldwide for digital cinema content distribution.

Qube XP Servers can manage media completely automatically by deleting older, unused media when additional space is required to ingest new media. This again makes the system entirely automatic in operation for the projectionist and manager and considerably simplifies their lives while reducing the possibility of human error.

Qube XP systems can be managed and operated locally and remotely via a powerful, highly interactive web-based UI which shows status and, with the proper login credentials, allows transport control, scheduling, content ingest, key management, media management as well as setup and maintenance. System logs can also be viewed over the web interface and downloaded as XML files that are signed for verification of authenticity.

# QubeMaster Xpress

When your cinema goes digital, will you lose your freedom? Your freedom to add statutory messages; to screen custom slides; to instantly show local commercials... Not if you have the powerful and easy-to-use QubeMaster Xpress! Now you can convert your slides, animations and videos into ready-to-use Digital Cinema Packages (DCPs) that will work on any digital cinema server! QubeMaster Xpress effortlessly guides you through the process of converting JPEG, TIFF, TGA and BMP images, Flash animations as well as AVI and Quicktime movies into standards compliant JPEG2000 DCPs.

## QubeShare

QubeShare is a shared storage solution for multiplexes with a large amount of RAID storage and Gigabit Ethernet connectivity. Designed to be housed in a secure central location such as the Manager's office or in an IT server room, QubeShare is managed remotely and is a high-availability system that requires virtually no maintenance.

## QubePlex

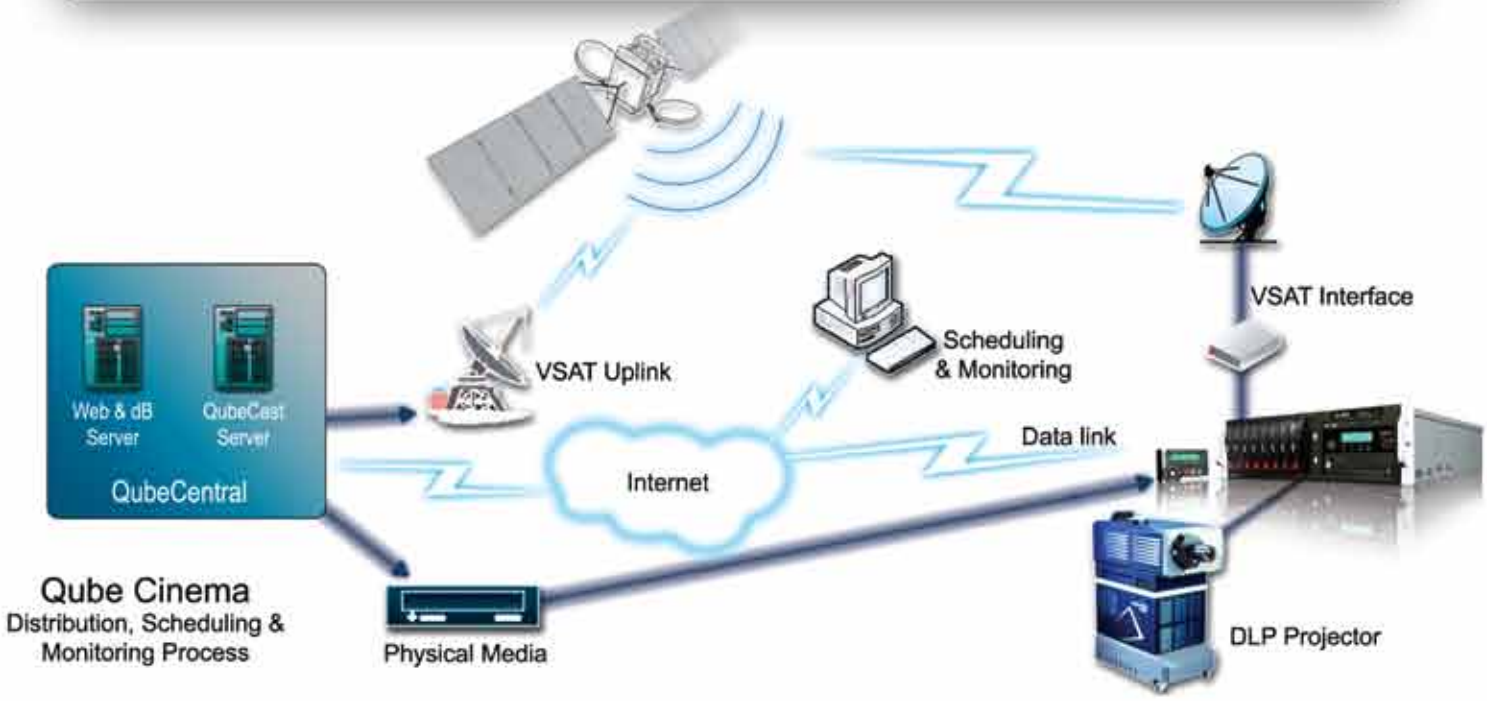
QubePlex is the central management system with status monitoring and control for every digital screen in the multiplex. QubePlex can be installed on any computer in the network and provides all technical personnel in the theatre instant feedback on the status of all screens while providing the manager or projectionist remote control over each individual screen.

## QubeCentral

QubeCentral is a web-based digital cinema network control, management and reporting system that also provides secure and auditable KDM Management. An option in QubeCentral is central scheduling of commercials and consolidated reports of as-run logs from networked units.

## QubeCast

QubeCast is a unique media transmission system which uses Digital Fountain's patented wirespeed delivery technology to securely move media over satellite and broadband networks much more efficiently than conventional IP based technologies such as ftp. QubeCast can handle both multicast and point-to-point transfers and is simply the best solution on the market for digital cinema networks.



# QubeMaster Pro

is a powerful, extremely fast and flexible software-based Digital Cinema mastering solution designed to integrate fully into a modern post environment. QubeMaster Pro encodes into multiple image compression formats including JPEG2000 and MPEG-2 with DCI specified encryption and MXF Wrapping. With the most comprehensive set of pre-processing capabilities in the industry including cropping, scaling, letter- and pillar-boxing, 1D and 3D LUTs, de-interlacing, frame-rate conversion and support for the Color Transform Language (CTL), QubeMaster Pro is able to directly encode the Digital Source Master (DSM) and create a Digital Cinema Distribution Master (DCDM) at the same time, thus saving significant time and cost. The powerful mastering interface follows the DCI Object Model and allows Track Files to be added to the database; picture, sound and subtitles to be synced accurately to form Reels; and Reels to be chained together to form Compositions. The system produces standards compliant Digital Cinema Packages (DCPs) for distribution to digital screens and Key Delivery Messages (KDMs) for Key Management Systems such as QubeCentral. QubeMaster includes realtime JPEG2000 and MPEG 2 playback capabilities for sound sync and QC purposes. QubeMaster Pro also has powerful features for Compositions to be edited for the localization requirements of different territories.

## Qube XP-D Series 2 Technical Specifications

| | |
|---|---|
| Digital Image Output: | 2 x Dual-link HD-SDI (2 x SMPTE 292M),<br>(4 x 75 ohms BNC) with TI CineLink™ 2 encryption |
| UI Monitor Output: | VGA 15-pin D-sub Female (monitor optional) |
| Digital Audio Output: | 26-pin D-sub Female with 8 x AES3 Output Pairs |
| Analog Audio Output: | 26-pin D-sub Female with 8-chan Analog Audio (option) |
| Image Formats: | DCI JPEG2000, MPEG-2 4:2:0 & 4:2:2, VC1 4:2:0 |
| Image Resolution: | 2048x1080P, 1920x1080P |
| Frame Rates: | 23.97, 24, 25, 29.97, 30, 48, 50 fps |
| Stereoscopic Picture: | 48 fps Single Track File format |
| Stereoscopic 3D Systems: | Dual Projector, Master Image and XpanD<br>Real-D™ and Dolby 3D™ support optional |
| Audio Formats: | Linear PCM Audio, 48 KHz and 96 KHz, 16 and 24-bit |
| File Formats: | MXF packaging for track files<br>XML packaging for compositions and shows |
| Subtitling: | Multi-lingual subtitling in the TI CineCanvas™ format |
| I/O Ports: | Gigabit Ethernet Port, RJ-45 x 2<br>Ethernet Management Port, RJ-45 x 1<br>Serial RS-232C Port, 9-pin D-sub Male x 1<br>USB 2.0 Ports, Rear Panel x 2, Front Panel x 1 |
| Automation: | Standard Serial and IP control using open ASCII protocol<br>Configurable support of Serial and IP devices |
| GPIO: | 25-pin D-sub Female (option)<br>8 opto-isolated trigger inputs and 8 relay trigger outputs |
| Storage: | 2 TB RAID storage<br>Qube SRD-51 Advanced RAID Controller (option) |
| Security: | 128-bit AES Encrypted Content<br>2048-bit RSA Encrypted Content Keys |
| Picture Watermarking: | Civolution NexGuard™ |
| Projectionist Interface: | USB Controller with Transport and Menu Buttons<br>and 4-line LCD Status Display |
| Management Interface: | Multi-lingual, multi-function web-based Interface<br>with System Status, Transport Control, Show Builder,<br>Scheduling, Content Ingest, Key Management,<br>Media Management, Log Viewer, Setup & Maintenance |
| Power Supply: | 100-240V AC 50/60Hz, 800W<br>dual-redundant power supply standard |
| Operating Temperature: | 10 to 40 degrees C |
| Operating Humidity: | 20% to 90% non-condensing |
| Supplied Cables: | 2 x IEC Power Cables, 1 x VGA monitor cable<br>1 x Remote Panel USB A to B<br>1 x D-sub 26-pin to D-sub 25-pin AES3 Cable<br>1 x D-sub 26-pin to D-sub 25-pin Analog Cable (option) |
| Size: | Main Unit – 48.5 cm (W) x 13.5 cm (H) x 69.2 cm (D)<br>3U Rack Mountable Unit<br>Remote Panel – 9.5 cm (W) x 4.0 cm (H) x 14.8 cm (D)<br>Packed – 68.0 cm (W) x 33.0 cm (H) x 87.0 cm (D) |
| Weight: | Main Unit – 27.0 Kg, Remote Panel – 0.6 Kg<br>Other Accessories and Rails – 7.4 Kg, Packed – 44.0 Kg |

Specifications mentioned herein are subject to change without notice due to continuous product development


## Qube Cinema, Inc.

**Europe**
Nigel Dennis
Tel: +44 (208) 144-5661 | Mobile: +44 7878717548
email: nigel@qubecinema.com

**USA**
4640 Lankershim Boulevard, Suite 601, North Hollywood, CA 91602-1844, USA
Tel: +1 (818) 392-8155 | Fax: +1 (818) 301-0401 | email: info@qubecinema.com
www.qubecinema.com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# COMPANY PROFILE

Space Vision was founded in October 2002 by a team of engineers and businessmen with vast experience in the area of electronics and audiovisual systems. The main goal of the company's founders was the creation of a flexible and dynamic enterprise, which would bring a new era in the field of the audiovisual solutions in Greece.

Since its foundation, our company has established a high reputation over the years, by implementing medium and large-scale projects and has managed to hold one of the highest positions in the area of AudioVisual Integrators in the Greek Market.

The company's activities vary from the trade, installation and engineering of audiovisual systems to the implementation of turnkey projects.

Today, the name of Space Vision stands out in hundreds of high-tech installations in cinemas, studios, classrooms, meeting rooms, auditoriums, convention centers, theaters and museums across a broad spectrum of public and private organizations and agencies all over Greece.

**SPACE VISION S.A.**
312 Mesogeion Avenue,
153 41 Agia Paraskevi,
Attika, Greece.
Tel.: +30210282103
Fax: +302825743
E-Mail: Info@spacevision.gr,
http://www.spacevision.gr